

UNITED STATES MARINE CORPS  
Logistics Operations School  
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Training Command  
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F101

**STUDENT OUTLINE**

INTRODUCTION TO MAINTENANCE MANAGEMENT

**LEARNING OBJECTIVES**

1. Terminal Learning Objectives:

a. Given the billet of maintenance management chief, the references, and a requirement to conduct maintenance/maintenance management inspections within an organization, identify how maintenance related inspections should be conducted, the inspection will be conducted to ensure maintenance management policy and procedures are in accordance with the references.

b. Given the billet of maintenance chief, equipment records, Equipment Repair Order (ERO), Daily Process Report (DPR), and the references, identify equipment PMCS and CM requirements, to ensure equipment records reflect current status of equipment during its process through the various phases of maintenance.

2. Enabling Learning Objectives: Given the billet of maintenance management chief and the references, identify the:

- a. Eight functional areas of maintenance management.
- b. Elements of maintenance management.
- c. Categories and echelons of maintenance.
- d. Characteristics of cannibalization.
- e. Characteristics of selective interchange.
- f. Marine Corps maintenance management policy.
- g. Characteristics of a temporary increase of echelon for maintenance.

## OUTLINE

### 1. PURPOSE AND CONTENT OF MIMMS RELATED PUBLICATIONS

#### a. MCO P4790.1B, MIMMS Introduction Manual

(1) The MIMMS Introduction Manual establishes the policy and procedures for MIMMS and the conduct of ground equipment maintenance in the Marine Corps. This manual actually implemented MIMMS.

(2) Contents of MCO P4790.1B

(a) This manual defines the MIMMS concept and lists the MIMMS objectives.

(b) The manual also establishes and organizes the Maintenance Management Officer's (MMO's) responsibilities from Headquarters, Marine Corps to battalion level units.

#### b. MCO P4790.2C, MIMMS Field Procedures Manual

(1) The purpose of the MIMMS Field Procedures Manual is to establish policies and procedures for the management of ground equipment maintenance in field units of the Regular Establishment and ground and aviation units of the Selected Marine Corps Reserves.

(2) Contents of MCO P4790.2C

(a) MCO P4790.2C defines the policies to be followed in the assignment of equipment maintenance services to higher echelons of maintenance, use of secondary reparable/repair parts, cannibalization, equipment readiness for combat, and administrative storage/deadline.

(b) Establishes maintenance management responsibilities and relationships.

(c) Defines the maintenance mission and organization to include equipment and maintenance allowances/requirements.

(d) Discusses the management of equipment maintenance, logistics support, maintenance plans, supply support, facilities, personnel, and training.

(e) Covers the organization of maintenance assets to include establishing a maintenance shop, function, and maintenance workflow.

(f) It also covers equipment maintenance operations including recovery, evacuation, preventive/corrective maintenance, modifications, calibrations, and Limited Technical Inspections (LTI's).

(g) Establishes the responsibilities and objectives for the records and reports system.

(h) Defines the policies, types, and characteristics of inspections and visits.

(i) Discusses the policy and phases of the corrective and preventive maintenance process.

(j) Covers many maintenance management techniques and tool care responsibilities.

(k) Provides examples on how to troubleshoot maintenance management problems.

(l) Establishes guidelines for the preparation of Maintenance Management Standing Operating Procedures (MMSOP).

c. UM 4790-5 MIMMS, (AIS) Field Maintenance Procedures Manual

(1) This MIMMS (AIS) Users Manual sets forth detailed procedures and instructions for the supporting information subsystem at the field level (Field Maintenance Sub-System (FMSS)).

(2) Contents of UM 4790-5.

(a) UM 4790-5 defines the capabilities of the FMSS to include the elements of information such as the master ERO, parts, modification control, maintenance production, readiness, maintenance engineering, and computed elements.

(b) The publication describes the FMSS files to include the Master ERO, Activity Address (AA), Date, Master Equipment History, MI Standards, and EDIT Standard Files.

(c) UM 4790-5 also describes the systems operation to include the FMSS data flow and system organization.

(d) Describes the systems input, processing, and system output reports.

(e) The publication describes the maintenance flow.

(f) Describes all data elements.

(g) UM 4790-5 also displays sample input transactions and legends as they would appear on a coding sheet or MIMMS output report.

d. TM 4700-15/1H, Equipment Records Procedures. This manual provides instructions for the preparation, use, and the disposition of required forms and records associated with the operation and maintenance of Marine Corps ground equipment.

e. UM 4400-124, FMF SASSY Using Unit Procedures Users Manual. This manual provides the user with oriented documentation on the functional procedures of FMF SASSY using units. Codes are contained in this manual that you and the Supply Officer will use together. For example, status codes, advice codes, MIMMS status codes, etc.

f. UM 4400-123, FMF SASSY Management Unit Procedures Users Manual. This manual provides user oriented documentation on functional procedures of SASSY for all personnel who must make reference to the SASSY subsystem and to serve as a guide for training and educating personnel, thereby reducing the impact of personnel turnover. UM 4400-123 is divided into two volumes. A section of volume two covers the reparable issue point procedures.

g. MCBul 3000, Marine Corps Ground Equipment Resource Reporting (MCGERR). MCBul 3000 identifies the mission-essential principal end items and combat essential equipment items selected for equipment status reporting within the Marine Corps.

h. MCO P3000.11C, Marine Corps Ground Equipment Resource Reporting (MCGERR) Introduction/Policy Manual. This reference provides information concerning the ground equipment readiness of FMF and Organized Marine Corps Reserve Units.

i. MCO P4400.82F, Marine Corps Unified Materiel Management System (MUMMS) Controlled Item Management Manual. MCO P4400.82F provides information for individual item management of controlled items within the limits of MUMMS with the least administrative effort. The reference also contains detailed information pertaining to the following maintenance related programs:

- (1) Recoverable Items Program (RIP).
- (2) Replacement and Evacuation (R&E) Program.
- (3) Rebuild Program.
- (4) Secondary Depot Repairable Program.

j. MCO P4400.150E, Consumer-Level Supply Policy Manual. MCO P4400.150E provides policy about consumer-level supply, repairable issue point (RIP), materiel issue point (MIP), critical low-density (CDL) floats, investigations, pre-expended bin (PEB), and the use of the TAM and T/E.

## **2. THE OBJECTIVES OF THE MARINE CORPS INTEGRATED MAINTENANCE MANAGEMENT SYSTEM**

a. The overall objective of MIMMS is to **increase equipment readiness**. This is accomplished by encouraging better use of maintenance resources (funds, personnel, repair parts, tools and equipment, facilities, time, and publications) and by giving commanders the management tools to improve maintenance in their commands, thus increasing equipment readiness.

b. The objectives listed below will help to accomplish the overall objective of MIMMS.

(1) Define and establish uniform management policies and procedures for ground equipment maintenance.

(2) Improve staff planning, organization, direction, and coordination of maintenance activities.

(3) Document maintenance requirements, accomplishments, and how maintenance resources are expended.

(4) Provide timely update of requirements status through system interface.

(5) Provides timely management information for prioritizing operations and identification and correction of trends, excesses, deficiencies, and waste.

(6) Provides readiness-reporting information.

(7) Extracts selected history for use in acquisition, budgetary, and item management decision-making.

### **3. EQUIPMENT MAINTENANCE MANAGEMENT PROCEDURES**

#### **a. MIMMS General Procedures**

(1) Equipment maintenance management shall follow the procedures set forth in MCO P4790.1B and other directives and publications on maintenance issued by Headquarters, United States Marine Corps.

(2) Repairs on equipment shall be performed at the lowest echelon/category of maintenance as possible.

(a) The choice of echelon/category depends on the type of repair, time factors, parts needed, and the availability of tools, equipment, and personnel.

(b) Local conditions and the tactical situation of FMF organizations must also be considered.

(c) Tactical conditions and temporary shortages of support equipment or personnel may preclude a unit from performing maintenance it is normally authorized to conduct and require a unit to evacuate the equipment to the next higher echelon.

#### **b. MIMMS Specific Procedures**

(1) All organizations shall perform only those maintenance actions, which they are authorized to perform. The Unit's T/O is the source for determining the level of maintenance authorized along with specific Marine Admin releases.

(2) Material requiring repair beyond the scope or capability of one echelon shall be evacuated to the next higher echelon.

(3) Each echelon is authorized to perform any maintenance function of lower echelons and shall do so when required by practical and tactical situations.

(4) Lower maintenance echelons shall not perform maintenance assigned to a higher echelon. Evidence of an attempt to perform maintenance beyond a unit's capability shall be reported to the proper commander for corrective action.

(5) Movement, protection, preservation, and general care of reparable material, which is in an unserviceable condition, shall be the same as that afforded serviceable material. This prevents further deterioration and minimizes the commitment of maintenance resources required to return the equipment to a serviceable condition.

(6) The time that reparable material remains unserviceable shall be kept to a minimum since unserviceable material represents a significant investment. While reparable material is unserviceable, the owning unit is either denied its use or a like serviceable item must be provided while the unserviceable item is being repaired. Therefore, delays in performing maintenance or in evacuating unserviceable equipment will be eliminated.

(7) Maintenance and maintenance management procedures in a garrison environment shall not differ significantly from those in deployed units.

(8) Information recorded on maintenance actions will be limited to those required by current publications. Maintenance management information shall be automated to the maximum extent possible to reduce manual record keeping.

(9) FMF units are not authorized to perform depot (fifth echelon) maintenance, except as specifically authorized by the Commandant of the Marine Corps (LPP).

(10) Major subordinate command (MSC) commanders are authorized to approve temporary (six months or less) increases in a unit's authorized echelon of maintenance.

(11) The Commanding Generals, 4th Marine Division and 4th Marine Aircraft Wing, may grant extensions to the six-month limitation normally imposed for temporary increases in the echelon of maintenance and may waive associated T/O change request requirements.

(12) FMF commands and other commands with combat-related missions shall give subordinate units returning from combat, deployment, or extensive training operations enough time for maintenance needed to recover full combat readiness.

(13) Supporting establishments such as Marine Corps bases, air stations, DMA's, Marine Corps districts, barracks, and other activities not part of the operating forces, are exempt from those provisions of MCO P4790.2C which conflict with directives that specify policy, procedures, and programs for garrison mobile equipment (GME).

(14) Maintenance by cannibalization and selective interchange.

(a) The following definitions provide guidance and clarification concerning cannibalization and selective interchange.

1. Cannibalization is the removal of serviceable parts from one item of equipment to install them on another item of equipment. This is an illegal action that equates to steeling.

2. Selective interchange is the exchange of selected serviceable repair parts/components from a deadlined item of equipment for unserviceable repair parts/components from a like item. The exchange must be complete to qualify as selective interchange. The exchange, however, may take the form of a requisition for the replacement item in lieu of the actual unserviceable repair part/component.

(b) Maintenance by cannibalization or selective interchange is considered to be an exceptional procedure and is authorized only when an operational commitment is imminent, and only when it appears that the required part/component cannot be obtained on a timely basis. Maintenance by selective interchange or cannibalization must be performed on a case-by-case basis and authorized by:

1. The CMC (LP).

2. The major subordinate command commander.



3. The commander of any unit that is authorized by T/O to perform at least third echelon maintenance and/or be an authorized maintenance float or subfloat holder. The commander must ensure that:

a. The equipment or secondary reparable is in the intermediate category (3d or 4th echelon) of maintenance.

b. The commander of the unit that owns the equipment from which the serviceable part or secondary reparable is to be removed has concurred with the interchange.

#### **4. MAINTENANCE MANAGEMENT PERSONNEL AND THEIR RESPONSIBILITIES**

a. Commanding officers are responsible for ensuring that an effective maintenance program is conducted within their command. To accomplish this, commanders will:

(1) Make sure that the approach to equipment maintenance and its management is effective, logical, and consistent and that MIMMS is properly functioning throughout their command.

(2) Instill in their staffs, subordinate commands, and maintenance sections the importance of the maintenance program to their overall mission.

(3) Stress equipment maintenance inspections and daily contact between commanders, staff officers, and maintenance personnel.

(4) Make sure that training programs are established which address MIMMS functional areas targeting operators, technicians, clerical, and supervisory personnel.

(5) Ensure that proper personnel are utilized in order to assist them in managing the command's maintenance program.

(6) Publish maintenance management SOP's for continuing programs in the following areas:

(a) Preventive maintenance (PM) scheduling and performance.

(b) Corrective maintenance (CM) scheduling and performance.

(c) Calibration control.

(d) Modification control.

(e) Publication control.

b. Responsibilities of the Maintenance Management Officer (MMO)

(1) The MMO will supervise the equipment maintenance program within the unit or section to which he or she is assigned. The MMO will coordinate and integrate the effort of all maintenance activities in the unit.

(2) Commands, to include detached or separate commands, which are authorized second echelon or higher maintenance capability for more than one commodity area will assign an officer or staff noncommissioned officer, in writing, as maintenance management officer (MMO) to provide supervision over equipment maintenance.

(a) The MMO's responsibilities may be assigned as an additional duty for an officer or the primary duty of the SNCO when the maintenance requirements of the command do not necessitate the assignment of an officer on a full-time basis.

(b) In units authorized second or higher echelon maintenance in only one commodity area, the individual designated, as the commodity manager shall perform the maintenance management functions and need not be designated as the MMO.

(3) The MMO must ensure the highest state of equipment readiness possible with the resources available. The MMO has the staff responsibility for the operation and function of MIMMS, and is responsible for the management and coordination of the following eight maintenance management functional areas:

(a) Maintenance administration to include the use of maintenance resources; development of the MMSOP, desktop procedures, and turnover folders; scheduling maintenance; inventory of equipment; identification of facilities requirements; and establishment of safety programs.

(b) Personnel and training. The MMO will coordinate with the G-1/S-1 and G-3/S-3 respectively with personnel requirements and the training of the personnel.

(c) Records and reports. The MMO will assist the commodity manager in the preparation of maintenance forms and records and the management of maintenance programs; and will also monitor the reports and the output to correct errors and identify possible problems.

(d) Publications control. The MMO will coordinate with the G-1/S-1 and commodity managers to make sure that adequate quantities of publications are on hand, publication internal distribution control procedures are established, publications are up-to-date, and the proper form is completed to notify the appropriate personnel of discrepancies in publications.

(e) Equipment availability. The MMO will advise the commanding officer on equipment readiness and make sure that procedures are established for employment of the maintenance cycle time program.

(f) Preventive maintenance checks and services (PMCS) and Corrective maintenance (CM). The MMO will coordinate with the commodity managers and maintenance officers to make sure that:

1. Proper follow-up procedures are established for correcting discrepancies noted during the performance of PMCS.

2. Maintenance production procedures are established.

3. Effective reconciliation with respective supporting maintenance activities is accomplished.

4. Quality control procedures are established.

5. The unit's Product Quality Deficiency Report (PQDR) program is centrally controlled unless this function has been delegated to the unit's quality assurance section.

(g) Supply support. The MMO will coordinate with the supply officer to ensure that the unit has an established policy for the support of new equipment. The MMO will also assist the supply officer in the following:

1. Matters relative to support maintenance and repair parts.

2. Budget preparation by identifying maintenance and repair part funding requirements and executing the approved budget.

(h) Maintenance related programs. The MMO along with the commodity managers and maintenance officers will coordinate the unit's participation in the following maintenance related programs.

1. Administrative storage and administrative deadline programs.

2. Contact team/limited technical inspection maintenance support.

3. Maintenance Stand down.

4. Joint Oil Analysis Program (JOAP).

5. Replacement and Evacuation (R&E) Program.

6. Inspect and Repair Only as Necessary (IROAN).

7. Corrosion and Wear Control (CWC) Program.

c. The responsibilities of the maintenance officer/commodity manager are as follows:

(1) Serves as the technical adviser to the commander on all commodity maintenance functions.

(2) Supervises the maintenance/commodity operations for the unit.

(3) Plans maintenance workload based on the maintenance level authorized, priority, availability of parts, tools, equipment, level of personnel experience, and tactical situation.

(4) Schedules, directs, and supervises the care, inspection, and maintenance of the unit's equipment.

(5) Inspects equipment periodically and assures that the required records are maintained properly, and that performed maintenance conforms to established standards.

(6) Maintains staff responsibility for the operation and functioning of the MIMMS within the respective area of responsibility.

(7) Plans and coordinates a program of resources management, to include:

(a) The training and utilization of maintenance personnel.

(b) Availability of tools and support equipment.

(c) Availability and use of technical information and maintenance facilities.

(d) Maintenance funding and contract maintenance.

(e) Use of repair parts.

(f) Accurate submission of equipment and resource information.

(8) Coordinates effective repair parts support with the unit's supply officer.

(9) Analyzes maintenance information to evaluate equipment performance and maintenance production.

(10) Acts as liaison with internal and external agencies on maintenance matters and coordinates efforts in the maintenance related programs.

(11) Establishes maintenance production and quality control programs.

(12) Maintains staff responsibility for the operation and functioning of the unit's calibration, preventive and corrective maintenance, modification, and publications control programs.

## **5. RELATIONSHIP BETWEEN MIMMS AND THE AUTOMATED INFORMATION SYSTEM (AIS)**

a. MIMMS AIS provides essential maintenance management information in an efficient and timely manner. Automation is used to the maximum practicable extent to record, process,

store, and produce required data. This is accomplished as accurately and rapidly as possible with minimal use of equipment resources and personnel.

b. System Features. MIMMS AIS incorporates maintenance data generated from both manual and automated sources. It is used at all levels of command throughout the Marine Corps.

(1) MIMMS AIS is an integrated system, and it provides for uniform and centralized maintenance management information at each command level.

(2) Though it interfaces with existing Marine Corps systems and programs, it does not duplicate them.

(3) MIMMS AIS allows for timely input, storage, and retrieval of maintenance information.

(4) A key feature of the system is the ability to provide the information needed to support maintenance engineering, production, and resources management.

c. System Input. Input documentation provides for input at the information source and requires minimal effort by the originator in both its preparation and input into the system. Definitions for required code entries and procedures for input transactions are provided in UM 4790-5.

d. System Output. Reports generated by the MIMMS AIS are in a format conducive to easy reading and contain only that information required for maintenance decisions and actions at the appropriate command level.

e. Capabilities. The system provides for the reporting of active maintenance and repair parts information, production of selected SASSY and MIMMS Readiness Reporting System transactions, collection of historical costs, and maintenance engineering and modification control information. The capabilities of the system are as follows:

(1) The recording of original data at the working level from the primary source documents, such as the Equipment Repair Order (ERO), and Equipment Repair Order Shopping List (EROSL).

(2) The timely delivery and processing of maintenance and supply information.

(3) The automatic preparation of scheduled reports to be used by maintenance managers at the shop, command, and staff levels.

(4) The storage of job costs, application of repair parts, modification control, and maintenance information to permit the extraction in any form at any frequency desired.

(5) To provide input to the Readiness Reporting System as well as selected SASSY input transactions.

(6) To provide maintenance engineering and modification status input to higher headquarters.

f. Maintenance categories and echelons

(1) Maintenance is the action taken to retain material in or restore it to a specific condition. It includes: inspection, testing, servicing, classification as to serviceability, repair, rebuilding, and reclamation.

(2) Maintenance categories are broken down into three distinct areas.

(a) Organization maintenance is maintenance production, scheduled or unscheduled, which is the responsibility of and performed by the using unit on Table of Equipment and special allowance assigned equipment. Organizational maintenance has two echelons of maintenance within it.

1. The user or operator of the equipment performs first echelon maintenance. It includes the proper care, use, operation, cleaning, preservation, lubrication, and such adjustment, minor repair, testing, and parts replacement as may be prescribed by pertinent technical publications, tools, and part allowances. There is no requirement to collect MIMMS/AIS data at first echelon.

2. Second echelon is maintenance performed by specially trained personnel in the organization. Appropriate publications authorize the second echelon of maintenance (EOM). This includes performance of scheduled maintenance, diagnosis and isolation of readily traced equipment malfunctions, replacement of major assemblies' components.

(b) Intermediate maintenance is performed by designated activities in direct support of using organizations. It includes calibration and repair/replacement of damaged or unserviceable parts and provides technical assistance, support through a secondary reparable issue point and or contact team support. Intermediate maintenance has two echelons of maintenance within it.

1. Third echelon maintenance is authorized by appropriate publications to be performed by specially trained personnel either in an intermediate or organizational role. Third echelon maintenance includes, adjustment and alignment of modules using test, measurement, and diagnostic (TMDE) equipment, repair by replacement of modular components and piece parts which do not require extensive post maintenance testing, seal replacement, application of external parts, and evaluation of emissions of internal combustion engines.

2. Fourth echelon maintenance is normally associated to semi-fixed or permanent shops of intermediate maintenance activities (IMA) that have a commodity peculiar mission. Forth echelon includes diagnosis, isolation, adjustment, calibration, alignment, and repair of malfunctions to the internal piece part level.

(c) Depot maintenance is maintenance requiring major overhaul or complete rebuild of parts, subassemblies, assemblies, or end items, including the manufacturing of parts and performance of required modifications, testing, and reclamation. Depot level maintenance only contains fifth echelon maintenance. CMC (LPP) can only authorize depot level maintenance.

#### **REFERENCES:**

1. MCO P4790.1B
2. MCO P4790.2C